

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 74698-106	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/CA2004/000444	International filing date (day/month/year) 29/03/2004	(Earliest) Priority Date (day/month/year) 28/03/2003
Applicant  MED - ENG SYSTEM INC.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 17 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☒ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regards to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 4A

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

**Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☒ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:  
  
1-114, 117-130, 144-151
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-25,47-61

A head protection system comprising a helmet shell, mounting means for pivotally mounting a visor, retaining means for retaining said visor and a visor comprising a layer of transparent material and at least one layer of ballistic resistant material.

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2. claims: 26-46,99

A helmet comprising a shell and mounting means for pivotally mounting a shield member to said shell and a locking system.

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3. claims: 62-73,144,149-151

A helmet comprising a shell and strap means.

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4. claims: 74-79,87-90,100-114

A helmet comprising a shell, an electrically powered system and a power controller.

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5. claims: 80-86

A helmet comprising a shell, a visor, a moisture reducing means treatment on the surface thereof and electrically powered means for providing ventilation.

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6. claims: 91-98

A helmet comprising a shell, a shield member, coupling means and shock absorption means.

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7. claims: 115-116

A protective helmet having a side portion which covers the ear of the user and a microphone positioned on said side portion.

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8. claims: 117-130

A head protector comprising a helmet shell having a head cavity, a liner, at least one retainer and a packing member.

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

9. claims: 131-143

A head protector comprising a helmet shell and a shield and coupling means for slidingly engaging and disengaging the shield to and from the helmet.

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10. claims: 145-148

A protective system comprising a helmet and a plurality of visors.

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Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

A head protection system comprises a helmet shell (4), a visor mounting (5) for pivotally mounting a visor (6) to the shell to enable the visor to be moved between raised and lowered positions, and a retainer (8) for releasably retaining the visor to the helmet. The system includes a visor adapted for mounting on the shell which comprises a substrate of transparent thermoplastic material (108) and a backing substrate (130) comprising a plurality of layers of high performance, ballistic resistant material. The system may further include a second visor which can be releasably connected to the shell using the same visor mounting and which may have a different construction and primary function.

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 F41H5/04 F41H1/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 F41H A42B A62B G02B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)  
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 32 44 152 A (HPS-HILDEBRANDT GESELLSCHAFT FÜR KUNSTSTOFFVERARBEITUNG) 30 May 1984 (1984-05-30) page 4, line 1 - line 11	1
Y	page 5, line 19 - line 32 page 6, line 16 - line 27; claims 1-3; figures 1-8	2-25, 47-61
Y	----- US 3 573 150 A (BROUTMAN ET AL.) 30 March 1971 (1971-03-30) abstract column 2, line 31 - line 34 column 6, line 7 - line 8; figures 1-3 ----- -/--	2-25, 47-61

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

21 September 2004

Date of mailing of the international search report

07. 10. 2004

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 86 33 539 U (EVERS)	1
A	9 April 1987 (1987-04-09) page 2, line 2 - line 9; claim 1; figures 1,2	2-25, 47-61
X	FR 2 607 237 A (GALLET)	1
A	27 May 1988 (1988-05-27) page 1, line 1 - line 21; figures 1,2	2-25, 47-61
X	US 3 636 565 A (LUISADA ET AL.)	26-32, 35-40
Y	25 January 1972 (1972-01-25) column 2, line 36 - column 3, line 63	33,34, 41-43, 92-98 44-46
A	figures 1-7	
X	FR 2 706 257 A (GALLET)	26-32, 35-40
A	23 December 1994 (1994-12-23) page 8, line 15 - page 10, line 2; figure 5	33,34, 41-46
X	US 5 747 159 A (LABOCK)	47-50, 57-61
	5 May 1998 (1998-05-05) column 7, line 61 - column 8, line 50; figures 8,9	
X	EP 1 069 370 A (SUMINISTROS ADARO)	74-77, 87-90
Y	17 January 2001 (2001-01-17) paragraph [0013] - paragraph [0026]; figures 1-5	78, 100-113
X	DE 729 240 C (GERMANN)	74-77, 87-90, 113
	11 December 1942 (1942-12-11)  page 2, left-hand column, line 22 - right-hand column, line 63; figures 1-4	
X	US 5 357 409 A (GLATT)	74,87, 113
	18 October 1994 (1994-10-18) column 3, line 62 - column 4, line 42; figures 1,2	
X	EP 0 818 156 A (BMW)	87,113, 114
Y	14 January 1998 (1998-01-14) column 3, line 47 - column 4, line 47	78,88-90
A	figures 1,2	80-86
X	US 4 475 248 A (L'ABBE ET AL.)	91-98
Y	9 October 1984 (1984-10-09) column 1, line 47 - column 4, line 2	92-98, 117-121
A	figures 1,2,4	100-113
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 546 498 A (FANTIN) 15 October 1985 (1985-10-15) column 2, line 4 - line 63; figures 1-4 -----	99
X	US 6 101 916 A (PANOT ET AL.) 15 August 2000 (2000-08-15) column 3, line 24 - column 5, line 29; figures 1-3 -----	100-113
X	DE 200 349 C (DRÄGERWERK) 9 July 1908 (1908-07-09) the whole document -----	113,114
X	DE 31 45 106 A (BRD) 26 May 1983 (1983-05-26) page 7, line 2 - line 11; figure 3 -----	113,114
X	EP 0 412 205 A (TISSERONT ET AL.) 13 February 1991 (1991-02-13) abstract; figures 1-6 -----	113,114
Y		88-90
X	US 3 082 427 A (ZBIKOWSKI) 26 March 1963 (1963-03-26) column 3, line 4 - line 9; figures 1-6 -----	117-127
Y	column 1, line 60 - column 2, line 35 -----	128-130
X	US 2 867 812 A (ROTH ET AL.) 13 January 1959 (1959-01-13) column 2, line 58 - line 67; figures 1,2,5 -----	144
X	US 4 023 210 A (HANSON) 17 May 1977 (1977-05-17) claims 1,3; figures 1-9 abstract -----	145
X	WO 95/10955 A (SISTEMA COMPOSITI) 27 April 1995 (1995-04-27) page 4, line 12 - page 7, line 1; figures 1-6 -----	149,150
A		62-73
X	FR 2 716 348 A (API SEPLAST) 25 August 1995 (1995-08-25) page 4, line 24 - page 5, line 34; claims 3-6; figures 1,2 -----	149,150
A		62-73
X	US 4 326 303 A (RAPPLEYEA) 27 April 1982 (1982-04-27) column 2, line 34 - line 36; figure 1 -----	151
X	US 5 347 660 A (ZIDE ET AL.) 20 September 1994 (1994-09-20) the whole document -----	151
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	EP 0 294 676 A (ARAI) 14 December 1988 (1988-12-14) column 4, line 55 - column 5, line 53; figures 3-5	33,34, 41-43 44-46, 145-148
Y	DE 85 14 219 U (AIR TECHNIK) 27 June 1985 (1985-06-27) page 6, line 12 - page 7, line 22; claims 1,2,6; figures 1-5	62-73
Y	GB 1 018 928 A (FRIEDER) 2 February 1966 (1966-02-02) page 3, right-hand column, line 82 - line 91; figures 1,3 page 2, right-hand column, line 90 - page 3, left-hand column, line 32	62-73
Y A	US 4 498 202 A (YAMAMOTO) 12 February 1985 (1985-02-12) column 2, line 55 - column 4, line 54; figures 1-7	80-86 78
Y A	US 5 765 235 A (ARNOLD) 16 June 1998 (1998-06-16) column 3, line 52 - column 4, line 35; figure 2 column 2, line 14 - line 36	80-86 79
Y	WO 95/11473 A (KOPIN) 27 April 1995 (1995-04-27) page 48, line 18 - line 23; figure 51 page 35, line 32 - line 35	100-113
Y A	US 4 729 132 A (FIERRO) 8 March 1988 (1988-03-08) column 3, line 56 - column 4, line 43; figures 4-7	117-125 74-79
Y	US 3 789 427 A (AILEO) 5 February 1974 (1974-02-05) column 9, line 35 - line 47; figures 3,4	117-125
Y	US 2 184 043 A (HEILSTEDT ET AL.) 19 December 1939 (1939-12-19) page 1, right-hand column, line 3 - page 2, left-hand column, line 14; figures 1-5	128-130
Y	US 6 298 498 B1 (BURNS ET AL.) 9 October 2001 (2001-10-09) column 3, line 53 - column 4, line 25; figures 1,4-8	145-147
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 438 763 B1 (GUAY ET AL.) 27 August 2002 (2002-08-27) column 3, line 37 - column 4, line 32; figures 6,7a,7b -----	145-147
A	US 3 858 242 A (GOODING) 7 January 1975 (1975-01-07)  the whole document -----	1-25, 41-43, 47-61
A	US 4 817 596 A (GALLET) 4 April 1989 (1989-04-04) column 5, line 11 - line 25; figures 8,9 -----	15
A	US 3 495 273 A (AILEO) 17 February 1970 (1970-02-17) column 4, line 70 - column 7, line 22 column 9, line 24 - column 11, line 29; figures 1-8,21-25 -----	19-24
A	US 6 012 178 A (SCHUSTER ET AL.) 11 January 2000 (2000-01-11) the whole document -----	25
A	US 4 718 127 A (RITTMANN ET AL.) 12 January 1988 (1988-01-12) column 3, line 4 - column 6, line 61; figures 1-10 -----	26-46
A	FR 2 785 505 A (SHARK) 12 May 2000 (2000-05-12) abstract; figures 1-13 -----	26-31
A	EP 1 166 666 A (KASCO BETA) 2 January 2002 (2002-01-02) paragraph [0014] - paragraph [0023]; figures 1-5 -----	26-46
A	US 2002/148032 A1 (BASSON ET AL.) 17 October 2002 (2002-10-17) paragraph [0038] - paragraph [0049]; figures 1-25 -----	26-46, 145-148
A	US 4 445 253 A (HOWEY) 1 May 1984 (1984-05-01) column 2, line 25 - column 3, line 36; figures 1-6 -----	62-73
A	DE 90 15 739 U (HARTUNG HELMETS) 28 February 1991 (1991-02-28) page 5, line 15 - page 6, line 29; figures 1-3 -----	62-73
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2001/030630 A1 (JUNK) 18 October 2001 (2001-10-18)  paragraph [0029] - paragraph [0033]; figures 1-4 paragraph [0020] - paragraph [0027] -----	74-79, 87-90, 100-114
A	GB 2 370 972 A (SMITH ET AL.) 17 July 2002 (2002-07-17) the whole document -----	79
A	US 4 047 249 A (BOOTH) 13 September 1977 (1977-09-13) column 1, line 56 - line 62; figure 2 -----	79
A	US 2 798 221 A (BAILEY ET AL.) 9 July 1957 (1957-07-09) column 3, line 8 - line 38; figure 7 -----	99
A	US 4 887 320 A (LONG ET AL.) 19 December 1989 (1989-12-19) column 4, line 59 - column 5, line 31; figure 7 -----	99
A	WO 95/28100 A (MALENOTTI) 26 October 1995 (1995-10-26) page 16, line 28 - page 17, line 23; figures 1-6b,13a,13b,13c page 7, line 8 - page 10, line 13 -----	117-125, 148
A	GB 539 577 A (BYSON APPLIANCE) 16 September 1941 (1941-09-16) page 3, left-hand column, line 25 - right-hand column, line 75; figures 1-5 page 1, right-hand column, line 78 - line 93 -----	117-125
A	EP 0 291 308 A (HONDA) 17 November 1988 (1988-11-17) column 1, line 55 - column 2, line 12; figures 3,4 -----	117-125
A,P	US 6 622 313 B1 (CHOI ET AL.) 23 September 2003 (2003-09-23) column 3, line 60 - column 6, line 43; figures 2-8 -----	148
A	FR 2 759 869 A (JCP INDUSTRIES) 28 August 1998 (1998-08-28) the whole document -----	148
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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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A	US 5 603 117 A (HUDNER ET AL.) 18 February 1997 (1997-02-18) -----	
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